EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with James Bindseil (Reg. No. 42,326) on July 12, 2010.

The application has been amended as follows:

1. (Currently Amended) A server terminal configured to operate in [[a]] an ad hoc cluster of terminals ~~on an ad hoc network backbone of an ad hoc network~~, comprising:

a user interface configured to transmit and receive communications during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a processor configured to support an inter-cluster call between a second terminal in a first ad hoc cluster and a third ~~terminals~~ terminal in a second ad hoc cluster by establishing a route on the ~~ad hoc~~ network backbone for each communication packet transmitted from the second terminal to the third terminal, ~~wherein~~ the route ~~on the ad hoc network backbone depends~~

selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the processor further configured to establish the route by:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

2. (Currently Amended) The server terminal of claim 1, wherein the processor is further configured to establish the same route for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call for the first type of call, and to establish a different route for at least two of the communication packets transmitted

from the second terminal to the third terminal during the inter-cluster call for the second type of call.

3. (Currently Amended) The server terminal of claim 1, wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by constructing a network backbone topology map and selecting the ~~established~~ route based on information in the network backbone topology map.

4. (Currently Amended) The server terminal of claim 3, wherein the processor is further configured to select the ~~established~~ route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ as a function of the number of intermediary clusters between the second and third terminals ~~along the selected established route for such transmission~~.

5. (Currently Amended) The server terminal of claim 4, wherein the processor is further configured to select the ~~established~~ route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ as a function of the energy of such transmission.

6. (Currently Amended) The server terminal of claim 1, wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by mapping the third terminal to a primary route on the ad hoc network backbone to a first adjacent cluster and a

secondary route on the ad hoc network backbone to a second adjacent cluster, and selecting the primary route or secondary route.

7. (Currently Amended) The server terminal of claim 6, wherein the processor is further configured to select the primary route during the first type of inter-cluster call, and select either the primary or secondary route during the second type of call, the selection of the primary or secondary route being based on the loading of the ad hoc network backbone.

8. (Currently Amended) The server terminal of claim 6, wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by mapping the ~~first adjacent cluster~~ primary route to a first adjacent ~~transmitting~~ gateway terminal and a first adjacent master terminal for the first adjacent ~~transmitting~~ gateway terminal, and mapping the secondary route to a second adjacent ~~transmitting~~ gateway terminal and a second adjacent master terminal for the second adjacent ~~transmitting~~ gateway terminal.

9. (Currently Amended) The server terminal of claim 8, wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by communicating with the respective one of the first adjacent master terminal or the second adjacent master terminal ~~mapped to the adjacent cluster~~ corresponding to the selected one of the primary ~~and~~ or secondary routes to support intra-cluster scheduling and forwarding of such communication packet from the

second terminal to the corresponding one of the first or second adjacent ~~transmitting~~ gateway ~~mapped to such corresponding adjacent cluster~~.

10. (Currently Amended) The server terminal of claim 1, wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ using a network address assigned to the third terminal, and received from the network backbone in response to a location request.

11. (Currently Amended) The server terminal of claim 10, further comprising a cache, and wherein the processor is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ using a network address assigned to third terminal[[,]] and stored in the cache.

12. (Currently Amended) A method of communications on a server terminal configured to operate in [[a]] an ad hoc cluster of terminals ~~on an ad hoc network backbone~~, comprising:

transmitting and receiving communications at the server terminal during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master

terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

supporting an inter-cluster call between a second terminal in a first ad hoc cluster and a third ~~terminals~~ terminal in a second ad hoc cluster by establishing a route on the ad hoc network backbone for each communication packet transmitted from the second terminal to the third terminal, ~~wherein~~ the route ~~on the ad hoc network backbone depends~~ selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the establishing of the route further comprising:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

13. (Currently Amended) The method of claim 12, wherein the same route is established for each of the communication packets transmitted from the second terminal to the third terminal during the first type of inter-cluster call.

14. (Currently Amended) The method of claim 12, wherein a different route is established for at least two of the communication packets transmitted from the second terminal to the third terminal during the second type of inter-cluster call.

15. (Currently Amended) The method of claim 12, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by constructing a network backbone topology map and selecting the established route based on information in the network backbone topology map.

16. (Currently Amended) The method of claim 15, wherein the ~~established~~ route is selected ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ as a function of the number of intermediary clusters between the second and third terminals ~~along the selected established route for such transmission~~.

17. (Currently Amended) The method of claim 16, wherein the ~~established~~ route is selected ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ as a function of the energy of such transmission.

18. (Currently Amended) The method of claim 12, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal~~

~~during the inter-cluster call~~ by mapping the third terminal to a primary route on the ad hoc network backbone to a first adjacent cluster and a secondary route on the ad hoc network backbone to a second adjacent cluster, and selecting the primary route or the secondary route.

19. (Currently Amended) The method of claim 18, wherein the primary route is selected for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call.

20. (Currently Amended) The method of claim 18, wherein the selection of the primary or secondary route for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call is based on the loading of the ad hoc network backbone.

21. (Currently Amended) The method of claim 18, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by mapping the ~~first adjacent cluster~~ primary route to a first adjacent ~~transmitting~~ gateway terminal and a first adjacent master terminal for the first adjacent ~~transmitting~~ gateway terminal, and mapping the secondary route to a second adjacent ~~transmitting~~ gateway terminal and a second adjacent master terminal for the second adjacent ~~transmitting~~ gateway terminal .

22. (Currently Amended) The method of claim [[18]] 21, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by communicating with the respective one of the first

adjacent master terminal or the second adjacent master terminal ~~mapped to the adjacent cluster~~ corresponding to the selected one of the primary ~~and~~ or secondary routes to support intra-cluster scheduling and forwarding of such communication packet from the second terminal to the corresponding one of the first or second adjacent ~~transmitting~~ gateway terminal ~~mapped to such corresponding adjacent cluster~~.

23. (Currently Amended) The method of claim 12, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ using a network address assigned to third terminal, the method further comprising receiving the network address from the ad hoc network backbone in response to a location request.

24. (Currently Amended) The method of claim 23, wherein the route is established ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ using a network address assigned to third terminal, the method further comprising retrieving the network address stored in cache at the server terminal.

25. (Currently Amended) A server terminal configured to operate in [[a]] an ad hoc cluster of terminals ~~on an ad hoc network backbone~~, comprising:

means for ~~a user to participate in~~ transmitting and receiving communications during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications

link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

means for establishing a route on the ad hoc network backbone for each communication packet transmitted from a second terminal in a first ad hoc cluster to a third terminal in a second ad hoc cluster during an inter-cluster call, ~~wherein~~ the route ~~on the ad hoc network backbone depends~~ selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the means for establishing the route further comprising:

means for mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

means for communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

26. (Currently Amended) A method of communications ~~on a primary server terminal configured~~ to serve a plurality of terminals in [[a]] an ad hoc cluster ~~on an ad hoc network backbone~~, the method comprising:

using [[the]] a primary server terminal to support a plurality of inter-cluster calls for a number of the terminals in the ad hoc cluster by establishing a route on an ad hoc network backbone of an ad hoc network for each of the communication packets transmitted by each of the terminals to a corresponding other ad hoc cluster ~~engaged in one of the inter-cluster calls~~, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

dynamically designating one of the terminals in the ad hoc cluster as a backup server terminal in accordance [[to]] with an ad hoc protocol;

detecting a failure of the primary server terminal ~~failure~~;

processing a message received from the ad hoc network backbone at the backup server terminal based on detecting the failure, the message being addressed to the primary server terminal;

~~wherein the~~ selecting each route ~~on the ad hoc network backbone depends~~ for each of the plurality of inter-cluster calls from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the establishing of each route further comprising:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the respective communication packet.

27. (Currently Amended) The server terminal of claim 1, wherein the processor establishes [[a]] the route on the ad hoc network backbone between [[an]] a first inter-cluster bridge terminal in [[a]] the first ad hoc cluster and [[an]] a second inter-cluster bridge terminal in ~~a second network~~ the second ad hoc cluster.

28. (Currently Amended) The server terminal of claim 27, wherein the inter-cluster bridge terminals [[are]] comprise Address, Location, and Route (ALR) servers.

29. (Currently Amended) The method of claim 12, wherein establishing [[a]] the route on the ad hoc network includes establishing [[a]] the route between [[an]] a first inter-cluster bridge terminal in [[a]] the first ad hoc cluster and [[an]] a second inter-cluster bridge terminal in [[a]] the second ad hoc cluster ~~network~~.

30. (Currently Amended) The method of claim 29, wherein establishing [[a]] the route between [[an]] the first inter-cluster bridge terminal in the first ad hoc cluster and [[an]] the second inter-cluster bridge terminal in the second ad hoc cluster ~~network~~ includes establishing [[a]] the route between Address, Location, and Route (ALR) servers.

31. (Currently Amended) At least one processor for communications on a server terminal configured to operate in [[a]] an ad hoc cluster of terminals ~~on an ad hoc network backbone~~, comprising:

a first module for transmitting and receiving communications at the server terminal during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal

slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a second module for supporting an inter-cluster call between a second terminal in a first ad hoc cluster and a third ~~terminals~~ terminal in a second ad hoc cluster by establishing a route on the ~~ad hoc~~ network backbone for each communication packet transmitted from the second terminal to the third terminal, ~~wherein~~ the route ~~on the ad hoc network backbone depends~~ selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the second module for supporting the inter-cluster call by establishing the route further configured for:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

32. (Currently Amended) A computer program product for communications on a server terminal configured to operate in [[a]] an ad hoc cluster of terminals ~~on an ad hoc network backbone~~, comprising:

a computer-readable storage medium comprising:

a first set of codes for causing a computer to transmit and to receive communications at the server terminal during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a second set of codes for causing the computer to support an inter-cluster call between a second terminal in a first ad hoc cluster and a third ~~terminals~~ terminal in a second ad hoc cluster by establishing a route on the ~~ad hoc~~ network backbone for each communication packet transmitted from the second terminal to the third terminal, ~~wherein~~ the route ~~on the ad hoc network backbone depends~~ selected from a plurality of routes depending on whether the inter-

cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the second set of codes for establishing the route further comprising:

at least one code for mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

at least one code for communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

33. (Currently Amended) At least one processor for communications ~~on a primary server terminal configured~~ to serve a plurality of terminals in [[a]] an ad hoc cluster ~~on an ad hoc network backbone~~, comprising:

a first module for using [[the]] a primary server terminal to support a plurality of inter-cluster calls for a number of the terminals in the ad hoc cluster by establishing a route on an ad

hoc network backbone of an ad hoc network for each of the communication packets transmitted by each of the terminals to a corresponding other ad hoc cluster ~~engaged in one of the inter-cluster calls~~, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a second module for dynamically designating one of the terminals in the ad hoc cluster as a backup server terminal in accordance [[to]] with an ad hoc protocol;

a third module for detecting a failure of the primary server terminal ~~failure~~;

a fourth module for processing a message received from the ad hoc network backbone at the backup server terminal based on detecting the failure, the message being addressed to the primary server terminal~~, wherein the~~;

the first module selecting each route ~~on the ad hoc network backbone depends~~ from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the first module establishing each route by:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the respective communication packet.

34. (Currently Amended) A computer program product for communications ~~on a primary server terminal configured~~ to serve a plurality of terminals in [[a]] an ad hoc cluster ~~on an ad hoc network backbone~~, comprising:

a computer-readable storage medium comprising:

a first set of codes for causing a computer to use [[the]] a primary server terminal to support a plurality of inter-cluster calls for a number of the terminals in the ad hoc cluster by establishing a route on an ad hoc network backbone of an ad hoc network for each of the communication packets transmitted by each of the terminals to a corresponding other ad hoc cluster ~~engaged in one of the inter-cluster calls~~, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a

master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a second set of codes for causing the computer to dynamically designate one of the terminals in the ad hoc cluster as a backup server terminal in accordance [[to]] with an ad hoc protocol;

a third set of codes for causing the computer to detect a failure of the primary server terminal ~~failure~~;

a fourth set of codes for causing the computer to process a message received from the ad hoc network backbone at the backup server terminal based on detecting the failure, the message being addressed to the primary server terminal;

~~wherein the~~ the first set of codes further comprising at least one code for selecting each route ~~on the ad hoc network backbone depends~~ from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster~~

~~bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the first set of codes for the establishing of each route further comprising:

at least one code for mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

at least one code for communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the respective communication packet.

35. (Currently Amended) An apparatus for communications ~~on a primary server terminal configured~~ to serve a plurality of terminals in [[a]] an ad hoc cluster ~~on an ad hoc network backbone~~, comprising:

means for using [[the]] a primary server terminal to support a plurality of inter-cluster calls for a number of the terminals in the ad hoc cluster [[by]] including means for establishing a route on an ad hoc network backbone of an ad hoc network for each of the communication packets transmitted by each of the terminals to a corresponding other ad hoc cluster ~~engaged in one of the inter-cluster calls~~, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

means for dynamically designating one of the terminals in the ad hoc cluster as a backup server terminal in accordance [[to]] with an ad hoc protocol;

means for detecting a failure of the primary server terminal ~~failure~~;

means for processing a message received from the ad hoc network backbone at the backup server terminal based on detecting the failure, the message being addressed to the primary server terminal~~, wherein the~~; and

the means for establishing of each route further comprising:

means for selecting each route ~~on the ad hoc network backbone depends~~ from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call;

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

means for mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

means for communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the respective communication packet.

36. (Currently Amended) A terminal system for communications, comprising:

a primary server terminal used to support a plurality of inter-cluster calls for a number of the terminals in the ad hoc cluster by establishing a route on an ad hoc network backbone of an ad hoc network for each of the communication packets transmitted by each of the terminals to a corresponding other ad hoc cluster ~~engaged in one of the inter-cluster calls~~, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets;

a processor for dynamically designating one of the terminals in the ad hoc cluster as a backup server terminal in accordance [[to]] with an ad hoc protocol, for detecting a failure of the primary server terminal ~~failure~~, and for processing a message received from the ad hoc network backbone at the backup server terminal based on detecting the failure, the message being addressed to the primary server terminal, ~~wherein the~~ each route ~~on the ad hoc network backbone depends~~ selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call;

~~wherein the ad hoc network comprises a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal;~~

~~wherein the gateway terminal is configured to form a communications link between at least two of the plurality of clusters; and~~

~~wherein each of the piconets comprises at least one intra-cluster bridge terminal, a master terminal, and a member terminal slaved to the master terminal, wherein the intra-cluster bridge terminal is a member of the two piconets and is configured to form a communications link between the two piconets~~

the establishing of each route further comprising:

mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and

communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the respective communication packet.

37. (Currently Amended) The at least one processor of claim 31, wherein the second module establishes [[a]] the route on the ad hoc network backbone between [[an]] a first inter-cluster bridge terminal in [[a]] the first ad hoc cluster and [[an]] a second inter-cluster bridge terminal in ~~a second network~~ the second ad hoc cluster.

38. (Currently Amended) The at least one processor of claim 37, wherein the first and second inter-cluster bridge terminals are Address, Location, and Route (ALR) servers.

39. (Currently Amended) The at least one processor of claim 31, wherein the second module is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by mapping ~~the third terminal to~~ a primary route on the ad hoc network backbone to a first adjacent ad hoc cluster and a secondary route on the ad hoc network backbone to a second adjacent ad hoc cluster, and selecting the primary route or secondary route.

40. (Currently Amended) The at least one processor of claim 39, wherein the second module is further configured to select the primary route during the first type of inter-cluster call, and to select either the primary or secondary route during the second type of call, the selection of the primary or secondary route being based on the loading of the ad hoc network backbone.

41. (Currently Amended) The at least one processor of claim 39, wherein the second module is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by mapping the ~~first adjacent cluster~~ primary route to a first adjacent ~~transmitting~~ gateway terminal and a first adjacent master terminal for the first adjacent ~~transmitting~~ gateway terminal , and mapping the secondary route to a second adjacent ~~transmitting~~ gateway terminal and a second adjacent master terminal for the second adjacent ~~transmitting~~ gateway terminal.

42. (Currently Amended) The at least one processor of claim 41, wherein the second module is further configured to establish the route ~~for each of the communication packets transmitted from the second terminal to the third terminal during the inter-cluster call~~ by

communicating with the respective first or second adjacent master terminal mapped to the first or second adjacent ad hoc cluster corresponding to the selected one of the primary [[and]] or secondary routes to support intra-cluster scheduling and forwarding of such communication packet from the second terminal ~~to the transmitting gateway mapped to such corresponding adjacent cluster~~.

43. (Currently Amended) The server terminal of claim 1, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

44. (Currently Amended) The method of claim 12, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

45. (Currently Amended) The server terminal of claim 25, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

46. (Currently Amended) The method of claim 26, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

47. (Currently Amended) The processor of claim 31, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

48. (Currently Amended) The computer program product of claim 32, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

49. (Currently Amended) The processor of claim 33, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

50. (Currently Amended) The computer program product of claim 34, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

51. (Currently Amended) The apparatus of claim 35, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

52. (Currently Amended) The terminal system of claim 36, wherein the route on the ad hoc network backbone is configured to pass through a first picocell for the first type of call and configured not to pass through the first picocell for the second type of call.

53. (Currently Amended) The server terminal of claim 1, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

54. (Currently Amended) The method of claim 12, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

55. (Currently Amended) The server terminal of claim 25, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured

to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

56. (Currently Amended) The method of claim 26, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

57. (Currently Amended) The at least one processor of claim 31, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein respective the intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

58. (Currently Amended) The computer program product of claim 32, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured

to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

59. (Currently Amended) The processor of claim 33, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

60. (Currently Amended) The computer program product of claim 34, wherein the gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

61. (Currently Amended) The apparatus of claim 35, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct

communications link with another intra-cluster bridge terminal of a different one of the two piconets.

62. (Currently Amended) The terminal system of claim 36, wherein the respective gateway terminal of one of the plurality of clusters is configured to form a direct communications link with another gateway terminal of a different one of the plurality of clusters, and wherein the respective intra-cluster bridge terminal of one of the two piconets is configured to form a direct communications link with another intra-cluster bridge terminal of a different one of the two piconets.

REASON FOR ALLOWANCE

Allowable Subject Matter

Claims 1-62 are allowed.

The following is an examiner's statement of reasons for allowance: Haas discloses a cluster with multiple piconets and edge terminal/terminal gateway that forms a link between the piconets. However Haas does not disclose a server terminal configured to operate in an ad hoc cluster of terminals, comprising: a user interface configured to transmit and receive communications during a call with a first terminal connected to an ad hoc network backbone of an ad hoc network, the ad hoc network comprising a plurality of clusters, each of the clusters comprising at least two piconets and at least one gateway terminal, each gateway terminal configured to form a communications link between at least two of the plurality of clusters, each of the piconets comprising at least one intra-cluster bridge terminal, a master terminal, and a

member terminal slaved to the master terminal, and the intra-cluster bridge terminal being a member of the two piconets and configured to form a communications link between the two piconets; a processor configured to support an inter-cluster call between a second terminal in a first ad hoc cluster and a third terminal in a second ad hoc cluster by establishing a route on the ~~ad hoc~~ network backbone for each communication packet transmitted from the second terminal to the third terminal, the route selected from a plurality of routes depending on whether the inter-cluster call is a first type of call or a second type of call that is different from the first type of call; and the processor further configured to establish the route by: mapping at least one adjacent ad hoc cluster to the corresponding gateway terminal and the corresponding master terminal; and communicating with the corresponding master terminal associated with the selected one of the plurality of routes via the corresponding gateway terminal to support intra-cluster scheduling and forwarding of the communication packet from the second terminal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joel Ajayi whose telephone number is (571) 270-1091. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Joel Ajayi/

Examiner, Art Unit 2617

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617